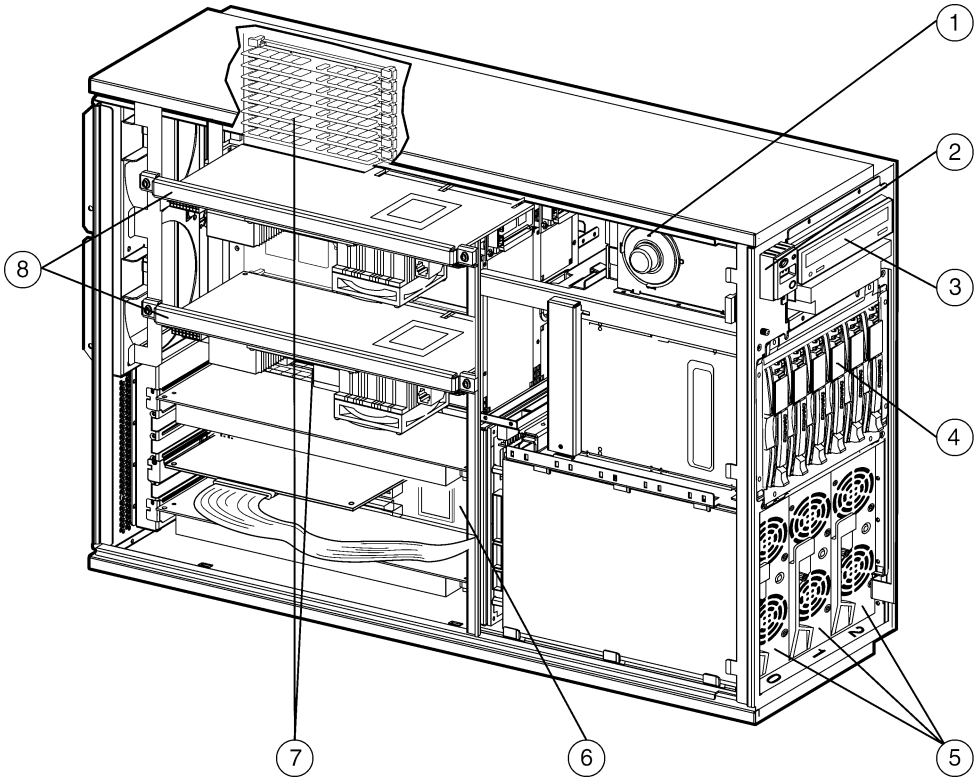
Overview

At A Glance

AlphaServer™/AlphaStation ™ DS25 Systems include:

- Alpha 21264C 1000-MHz processor (dual processor capability) with 8-MB L2 Dual Data Rate cache
- ECC-protected memory bus and cache
- Minimum 512-MB, expandable to 16 GB using 512-MB, 1-GB, 2-GB, and 4-GB options
- Six 64-bit PCI I/O expansion slots
- Three PCI buses
  - Two 66-MHz PCI buses
  - One 33-MHz PCI bus
- Six hot swap hard disk drive bays
- Internal mass storage capacity up to 872 GB
- Integrated dual Ultra3 SCSI adapter
- Integrated dual Ethernet (10/100 and 10/100/1000) adapters
- Two 500-Watt hot pluggable power supplies with optional third for N+1 redundancy
- 32X CD-R drive
- Protected by HP Services, including a one-year on-site limited warranty, on-site with 5 x 9 next business day response



1. Speaker
2. Operator control panel
3. CD-R drive
4. Hard disk drives
5. Power supplies
6. PCI I/O slots
7. Memory
8. CPUs

Standard Features

Processor	Alpha 21264C 1000-MHz processor	
Cache Memory	8-MB level 2 dual data rate cache per processor	
Upgradability	System upgradeable to dual processing	
Memory	Minimum	512-MB
	Maximum	16 GB
Network Controller	Integrated dual Ethernet adapters (one 10/100 and one 10/100/1000)	
Expansion	PCI I/O slots	6 total slots - Slots 1-4 run @ 64-bit/66 MHz - Slots 5 and 6 run @ 64-bit/33 MHz
Storage Controller	Integrated dual Ultra3 SCSI adapter	
Storage	CD-R	32X Max IDE CD-R Drive
	Internal Hard Drives	Choice of 18.2-GB, 36.4-GB, 72.8-GB, or 146-GB drives
	Maximum Internal Storage	872 GB
Interfaces	Parallel	1
	Serial	2
	Pointing Device (Mouse)	1
	Keyboard	1
	SCSI knockouts on rear of chassis	2 SCSI knockouts, 1 used by one channel on onboard Adaptec
	Ethernet	2 (10/100 and 10/100/1000)
Form Factor	Rackmount or Tower	
Manageability	Compaq *Insight Manager*™	
Power Supply	Two 500-Watt hot plug power supplies, standard; optional third N+1 for redundancy Hot plug redundant power supply support; hot plug fan support	
OS Support	AlphaServer DS25 *Tru64*™ UNIX™ systems include pre-installed software, Base license, Unlimited User license, Server Extension license, Internet Express, and Secure Web Server AlphaStation DS25 Tru64 UNIX systems include pre-installed software, 2-user Base license. AlphaServer DS25 *OpenVMS*™ systems include pre-installed software (V7.3-1), Base license with System Manager license and Enterprise Integration Server License Package for OpenVMS V3.1 AlphaStation DS25 OpenVMS systems include pre-installed software (V7.3-1), Base license, Concurrent Use 1-user license, NAS 150 Client license Minimum OS support: Tru64 UNIX V5.1A NHD5, OpenVMS V7.3-1	
Service and Support	Protected by HP Services including a one-year on-site hardware warranty with next business day response. Training, consulting, network integration, software support, comprehensive system maintenance and guaranteed uptime services are also available for customers requiring higher levels of service and support	

PCI Configuration Guidelines

- Modules designed for 5.0V signaling and 33-MHz bus speed can only operate in 5.0V/33-MHz slots (slots 5 and 6).
- A maximum total of two 5V modules can be installed in the system.
- Modules designed for 3.3 V signaling and 66-MHz bus speed can only operate in 66-MHz slots (slots 1, 2, 3, 4).
- Universal PCI modules can operate in all slots (3.3V and 5.0V).
- Universal PCI modules can operate at a maximum bus speed of 33 MHz or 66 MHz.
- Universal PCI modules operating at 33 MHz placed in a 66-MHz slot will reduce the entire hose to operate at 33 MHz.
- Universal PCI modules capable of operating at 66 MHz when placed in a 33-MHz slot will operate at 33 MHz.

PCI Module Descriptions:

PCI modules listed in this document as 33 MHz or 66 MHz refers to the module's maximum PCI bus speed.

- Modules that can only operate at 5V are designated as 5V – 33-MHz modules.
- Universal PCI modules are designated as 3.3/5V and can be installed into 33-MHz or 66-MHz slots.

The AlphaServer DS25 provides three PCI buses (hoses) that drive the six slots. A fourth hose drives the on-board Gbit Ethernet and dual channel Ultra3 SCSI adapter.

- Hose 0 – 33 MHz driving slots 5 and 6
- Hose 3 – 66 MHz driving slots 3 and 4
- Hose 1 – 66 MHz driving slots 1 and 2

The DS25 PCI bus and slot specifications follow:

PCI Slot	PCI Bus Speed	Signal Voltage	PCI Hot-Plug	PCI Hose Number
1	66 MHz	3.3V	No	1
2	66 MHz	3.3V	No	1
3	66 MHz	3.3V	Yes	3
4	66 MHz	3.3V	Yes	3
5	33 MHz	5.0V	Yes	0
6	33 MHz	5.0V	Yes	0

Step 1 – Select system

AlphaServer/AlphaStation DS25 systems require the **mandatory** selection of the following items:

- System memory (Step 2a)
- Pedestal/tower or rackmount bezel kit (Step 2b)
- Disk drive cage (Step 2c)
- System disk drive (Step 2d)
- Two power cords (Step 2e)
- Order country-specific keyboard and mouse only if required. (Step 14)
- Software media and documentation for first system onsite. (Step 16)

NOTES: DS25 minimum OS support –Tru64 UNIX V5.1A NHD5, OpenVMS V7.3-1.
Only 2-5-2 part numbers are factory integrated.

AlphaServer DS25 Systems		
OS	**CPU**	**Order Number**
Tru64 UNIX	1000 MHz	DA-57AAB-AA
OpenVMS	1000 MHz	DY-57AAB-AA
AlphaStation DS25 Systems		
Tru64 UNIX	1000 MHz	DA-57AAB-AW
OpenVMS	1000 MHz	DY-57AAB-AW

Step 2 – Select mandatory options

Step 2a – Memory – Mandatory

- System does not include memory; selection of one memory option for each system is mandatory. Up to three additional memory options can be added for a total of 16 GB. (In earlier (D*-57AAA-**) models, configurations with more than 8 GB require three power supplies; N+1 functionality is not supported in configurations with over 8 GB.)

512-MB memory option (4 x 128-MB DIMMs)	3X-MS350-CA
1-GB memory option (4 x 256-MB DIMMs)	3X-MS350-DA
2-GB memory option (4 x 512-MB DIMMs)	3X-MS350-EA
4-GB memory option (4 x 1-GB DIMMs)	3X-MS350-FA

Step 2b – Bezel Kits – Mandatory

- Pedestal/Tower kit or Rackmount kit is mandatory for each system

Pedestal/Tower bezel kit	3X-BA57P-PA
Rackmount bezel kit (M-Series Cabinets)	3X-BA57R-RA
Rackmount bezel kit for 9000 Series Cabinets (onsite integration only – contact CustomSystems if factory integration is required)	3X-BA57R-RC

Options

Step 2 – Select mandatory options *(continued)*

Step 2c – Disk Drive Cage – Mandatory

- Systems support one disk drive cage; disk drive cage supports six 1-inch hard disk drives or a combination of 1-inch disk drives and hot-plug Universal tape devices. Each tape device uses two slots in the BA610-6D.

6-bay disk drive cage	BA610-6D

Step 2d – System Disk Drive (Supported in Disk Drive Cage) – Mandatory

- Selection of one disk drive is mandatory

18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3848-AA
36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3838-AA
36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3849-AA
72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3839-AA
72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3851-AA
146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3841-AA

Step 2e – Power Cords – Mandatory

- Selection of two power cords is mandatory for all systems

Pedestal Power Cords	North America, 120V, 75-inches	BN26J-1K
	Australia, New Zealand, 2.5-meter	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter	BN19K-2E
	Egypt, India, South Africa, 2.5-meter	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter	BN35M-02
	Japan, 2.5-meter	3X-BN46F-02
	Switzerland, 2.5-meter	BN19E-2E
	UK, Ireland, 2.5-meter	BN19A-2E
	Republic of China	BN19H-2E
Rackmount Power Cords	All Countries	BN35S-4E

Step 3 – Additional CPU Modules – Optional

- One 68/1000-MHz CPU included, one additional CPU supported

SMP upgrade includes one 68/1000-MHz CPU with 8-MB cache and Tru64 UNIX SMP license	3X-KN410-CB
SMP upgrade includes one 68/1000-MHz CPU with 8-MB cache and OpenVMS SMP license	3X-KN410-CC

Step 4 – Additional Power Supplies – Optional

- Two 500-watt power supplies included with system; optional third power supply provides N+1 redundancy (power cord not included, select power cord from Step 2e). Earlier (D*-57AAA-**) models with 375-watt power supplies require three power supplies when configured with greater than 8 GB of memory. N+1 functionality is not supported in earlier models in configurations with over 8 GB.

DS25 500-watt redundant power supply	3X-H7911-AA
DS25 375-watt redundant power supply for earlier (D*-57AAA-**) models	FR-H7910-AA

Options

Step 5 – Internal Tape Storage – Optional

- BA610-6D drive cage drives connected to integrated Ultra3 SCSI adapter supports LVD Universal tape. Each device uses two slots

AIT 35/70-GB hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2396-AA
AIT 50/100-GB hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2779-AA
DAT 20/40-GB DDS4 hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2780-AA

Step 6 – External Storage – Optional

***StorageWorks*™ Model 4314R and Model 4354R Universal Drive Shelves**

- StorageWorks Model 4314R, 4314T, and 4354R Ultra3 SCSI (LVD) single-bus and split-bus Universal drive shelves; refer to StorageWorks Enclosure 4300 Family QuickSpecs when configuring shelves. When selecting a DS-SL13R-Bx split-bus shelf, two SCSI channels are required. No support for Model 4314R or 4314T single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter. BN38C-xx cable is required when connecting to embedded Ultra3 SCSI adapter. Note that the depth of a DS-SL13R-xx shelf does not allow front and rear mounting.

StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, U.S./International - No support for Model 4314R single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter	DS-SL13R-AA
StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, Japan - No support for Model 4314R single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter	DS-SL13R-AJ
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, U.S. /International	DS-SL13R-BA
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, Japan	DS-SL13R-BJ

StorageWorks Model 4314T Standalone Enclosure for Universal Drives

Model 4314T Ultra3 SCSI, single-bus tower enclosure, US. No support for Model 4314T single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter	DS-SL13T-AA
Model 4314T Ultra3 SCSI, single-bus tower enclosure, International. No support for Model 4314T single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter	DS-SL13T-AB
Model 4314T Ultra3 SCSI, single-bus tower enclosure, Japan. No support for Model 4314T single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter	DS-SL13T-AJ

StorageWorks Model 4314 Options	StorageWorks enclosure redundant power supply, U.S.	DS-SE2UP-AA
	StorageWorks enclosure redundant power supply, International	DS-SEPUP-AI

Options

Step 7 – Storage Devices – Optional

Disk Drives *(Supported in Model 4314R and Model 4354R Universal Drive Shelves)*	18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3848-AA
	36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3838-AA
	36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3849-AA
	72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3839-AA
	72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3851-AA
	146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3841-AA
UltraSCSI Configuration Rules	• UltraSCSI configurations require UltraSCSI components (controllers, adapters, shelves, disks, and cables) • UltraSCSI adapters and RAID controllers support UltraSCSI disks at UltraSCSI speeds in UltraSCSI shelves • Mixing faster SCSI devices with slower SCSI devices will slow that entire SCSI bus to the slower speed.	
Tape Drives	• Tabletop tape drives require LVD host bus adapter and country-specific power cord • Tape media may not be included, for more information see http://www.compaq.com/storage/productindextape.html **NOTE**: This web site is available in English only.	
AIT Tape Drives	AIT 35/70-GB hot plug LVD Universal tape drive uses two slots in BA610-6D or 43xxx shelves	3R-A2396-AA
	AIT 50/100-GB hot plug LVD Universal tape drive uses two slots in BA610-6D or 43xxx shelves	3R-A2779-AA
AIT Tabletop Tape Drives	AIT 35/70-GB 8-mm LVD tabletop tape drive, carbon black, North America; requires LVD adapter	216885-001
	Same as above, International	216885-B31
	Same as above, Japan	216885-291
	AIT 50/100-GB 8 mm SCSI tabletop tape drive with 120V North America power cord; requires 3X-KZPCA-AA LVD adapter	157767-002
	AIT 50/100-GB 8 mm SCSI tabletop tape drive, International; requires 3X-KZPCA-AA LVD adapter	157767-B32
	AIT 50/100-GB 8 mm SCSI tabletop tape drive, Japan; requires 3X-KZPCA-AA LVD adapter	157767-292
AIT Tape Libraries	AIT tape library with one 50-GB tape drives, 20 slots, tabletop, LVD	175195-B21
	AIT tape library with two 50-GB tape drives, 20 slots, tabletop, LVD	175195-B22
	AIT tape library with one 50-GB tape drives, 20 slots, rackmount, LVD	175196-B21
	AIT tape library with two 50-GB tape drives, 20 slots, rackmount, LVD	175196-B22
AIT Autoloaders	AIT autoloader, 35 GB, 8 cartridge, tabletop, LVD, U.S.	292355-001
	Same as above, International	292355-B31
	AIT autoloader, 35 GB, 8 cartridge, rackmount, LVD, U.S.	280349-001
	Same as above, International	280349-B31

Options

Step 7 – Storage Devices – Optional *(continued)*

DAT Tape Drives	DAT 12/24-GB 4 mm narrow single-ended tabletop SCSI tape drive with 120V North America power cord; requires 3X-KZPEA-DB, 3X-KZPCA-AA, 3X-DEPVZ-AA LVD adapters	DS-TLZ10-DB
	DAT 20/40-GB hot plug DDS4 tape drive uses two slots in BA610-6D or 43xx shelves	3R-A2780-AA
	DAT 20/40-GB DDS4 tape drive, tabletop, carbon black, North America	157770-002
	DAT 20/40-GB DDS4 tape drive, tabletop, carbon black, International	157770-B32
	DAT 20/40-GB DDS4 tape drive, tabletop, carbon black, Japan	157770-292
DAT Autoloaders	DAT 20/40-GB autoloader, tabletop, North America	166505-001
	DAT 20/40-GB autoloader, tabletop, International	166505-B31
	DAT 20/40-GB autoloader, tabletop, Japan	166505-291
DLT/SDLT Tabletop Tape Drives	DLT tabletop DLT8000 40/80-GB external tape drive, carbon black - requires 3X-KZPCA-AA LVD adapter; *TruCluster*™ support restricted to non-shared buses only.	146197-B23
	Same as above – Japan	146197-292
	SDLT tabletop 110/220-GB external tape drive; requires 3X-KZPCA-AA LVD adapter – U.S.	192103-002
	Same as above – Japan	192103-292
	Same as above – International	192103-B32
	SDLT tabletop 160/320-GB external tape drive, carbon black - requires 3X-KZPCA-AA LVD adapter – U.S.	257319-001
	Same as above – International	257319-B31
	Same as above – Japan	257319-291
DLT/SDLT Tape Libraries	MSL5026DLX or MSL5026SL, DLT/SDLT tabletop library, 0 drives; all MSL5026 libraries are supported with 3X-DEPVZ-AA and 3X-KZPCA-AA adapters	231838-B21
	MSL5026DLX, DLT tabletop library with one 40/80-GB DLT tape drive, LVD	231821-B21
	MSL5026DLX, DLT tabletop library with two 40/80-GB DLT tape drives, LVD	231821-B22
	MSL5026DLX or MSL5026SL, DLT/SDLT rackmount library, 0 drives; requires rackmount kit (254795-001)	231979-B21
	MSL5026DLX, DLT rackmount library with one 40/80-GB DLT tape drive, LVD; requires rackmount kit (254795-001)	231891-B21
	MSL5026DLX, DLT rackmount library with two 40/80-GB DLT tape drives, LVD; requires rackmount kit (254795-001)	231891-B22
	Rackmount kit for MSL5000 series – for use with H9Axx M-Series cabinets	254795-001
	MSL5026SL, SDLT tabletop library with one 110/220-GB SDLT tape drive, LVD	302511-B21
	MSL5026SL, SDLT tabletop library with two 110/220-GB SDLT tape drives, LVD	302511-B22
	MSL5026SL, SDLT rackmount library with one 110/220-GB SDLT tape drive, LVD; requires rackmount kit (254795-001)	302512-B21
	MSL5026SL, SDLT rackmount library with two 110/220-GB SDLT tape drives, LVD; requires rackmount kit (254795-001)	302512-B22

Step 7 – **Storage Devices** – Optional *(continued)*

MSL5026S2, SDLT2 tabletop library with one 160/320-GB SDLT tape drive, LVD	293473-B21
MSL5026S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD	293473-B22
MSL5026S2 SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001)	293472-B21
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive, LVD	293472-B22
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293472-B23
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B24
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B25
MSL5052SL SDLT tabletop library with two 110/220-GB drives, LVD	249490-B21
MSL5052SL SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001)	255102-B21
MSL5052SL SDLT rackmount library with two 110/220-GB drives, LVD – requires rackmount kit (254795-001)	249491-B21
MSL5052SL SDLT 110/220-GB drive field upgrade, LVD	231823-B22
MSL5052S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD, graphite	293476-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293474-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293474-B24
ESL9322S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 222 slots – requires 3X-KZPCA-AA adapter	293409-B22
ESL9322S2 SDLT2 tape library, eight 160/320-GB SDLT tape drives, 222 slots – requires 3X-KZPCA-AA adapter	293409-B28
ESL9322S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 322 slots – requires 3X-KZPCA-AA adapter	2934010-B22
ESL9322S2 SDLT2 tape library, eight 160/320-GB SDLT tape drives, 322 slots – requires 3X-KZPCA-AA adapter	2934010-B28
ESL9595SL LVD with two SDLT 110/220-GB drives, 400 slots	274672-B22
ESL9595SL LVD with 16 SDLT 110/220-GB drives, 400 slots	274672-B28
ESL9595SL LVD with two SDLT 110/220-GB drives, 500 slots	281627-B22
ESL9595SL LVD with 16 SDLT 110/220-GB drives, 500 slots	281627-B28
ESL9595SL LVD with two SDLT 110/220-GB drives, 595 slots	281628-B22
ESL9595SL LVD with 16 SDLT 110/220-GB drives, 595 slots	281628-B28

Options

Step 7 – Storage Devices – Optional *(continued)*

3U Rackmount Tape Drive Enclosure	3U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, 0 drives, carbon black	274338-B21
	Rackmount Kit for H9Axx M-Series Cabinets, carbon black – required for mounting 3U Rackmount Tape Drive Enclosure in M-Series cabinet	3R-A3804-AA
	NOTE: The 3U Rackmount Tape Enclosure supports up to four internal half-height removable devices, or up to two full-height devices; select up to four AIT or DAT devices or two DLT/SDLT devices with 3U Rackmount Tape Enclosure (274338-B21) or select one of the preconfigured configurations listed below.	
	AIT 35/70-GB 3U tape drive; requires 3X-KZPCA-AA LVD adapter, carbon black	216884-B21
	AIT 50/100-GB 3U tape drive; requires 3X-KZPCA-AA LVD adapter, carbon black, (157766-B22)	3R-A3753-AA
	DAT 20/40-GB 3U tape drive; requires 3X-KZPCA-AA LVD adapter, carbon black, (157769-B22)	3R-A3752-AA
	DLT8000 40/80-GB tape drive; requires 3X-KZPCA-AA LVD adapter	146196-B22
	SDLT 110/220-GB tape drive; requires 3X-KZPCA-AA LVD adapter	192106-B25
	SDLT 160/320-GB tape drive; requires 3X-KZPCA-AA LVD adapter, carbon black	257319-B21
	Preconfigured configurations	
	AIT 50-GB 3U rackmount kit, carbon black	274333-B21
	DLT 40/80-GB, 3U rackmount kit, carbon black	274332-B21
	DLT 40/80-GB, dual-drive, 3U rackmount kit, carbon black	274335-B21
	SDLT 110/220-GB, 3U rackmount kit, carbon black	274331-B21
	SDLT 110/220-GB, dual-drive, 3U rackmount kit, carbon black	274334-B21
5U Rackmount Tape Drive Enclosure	5U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, 0 drives, carbon black	274339-B21
	Rackmount Kit for H9Axx M-Series Cabinets, carbon black – required for mounting 5U Rackmount Tape Drive Enclosure in M-Series Cabinet	254795-001
	NOTE: The 5U Rackmount Tape Enclosure supports four full-height removable devices; select up to four DLT or SDLT devices with 5U Rackmount Tape Enclosure (274339-B21) or select one of the preconfigured configurations listed below.	
	DLT8000 40/80-GB tape drive; requires 3X-KZPCA-AA LVD adapter	146196-B22
	SDLT 110/220-GB tape drive; requires 3X-KZPCA-AA LVD adapter	192106-B25
	SDLT 160/320-GB tape drive; requires 3X-KZPCA-AA LVD adapter, carbon black	257319-B21
	Preconfigured configurations	
	SDLT 110/220-GB Tape Array III, 5U rackmount kit, carbon black	274336-B21
	DLT 40/80-GB Tape Array III, 5U rackmount kit, carbon black	274337-B21
	DLT Tape Array III, Model 0 enclosure, U.S.	168047-001
	Same as above, International	168047-B31
	Same as above, Japan	168047-291
Internal Drives for Tape Enclosures	SDLT 110/220-GB tape drive, carbon black	192106-B25
	SDLT 160/320-GB tape drive, carbon black	257319-B21
	DLT 40/80-GB tape drive, carbon black	146196-B22
	AIT 35/70-GB tape drive, carbon black	216884-B21
	AIT 50/100-GB tape drive, carbon black	157766-B22
	DAT 20/40-GB (DDS4) tape drive, carbon black	157769-B22

Options

Step 7 – Storage Devices – Optional *(continued)*

Modular Data Routers	The following Modular Data Routers are supported with MSL5000 and ESL9000 tape libraries:	
	Two Fibre Channel x 4 HVD Data Router (163082-B21)	3R-A2673-AA
	Two Fibre Channel x 4 LVD Data Router (163083-B21)	3R-A2774-AA
	Two Fibre Channel x 4 HVD FC to SCSI Data Route, Tru64 UNIX (262654-B21)	3R-A3741-AA
	Two Fibre Channel x 4 LVD FC to SCSI Data Router, Tru64 UNIX (262653-B21)	3R-A3740-AA
External Storage Solutions/Controllers	Enterprise Virtual Array Model 2C6D-B 60-Hz, includes 41U graphite storage cabinet, M3220 controller assembly with dual HSV110 controllers, six M5214 dual-redundant FC loop 14-bay drive enclosures, four 12-port FC loop switches; requires DS-KGPSA-xx (283198-B21)	DS-SV110-JA
	Enterprise Virtual Array Model 2C6D-B 50-Hz, includes 41U graphite storage cabinet, M3220 controller assembly with dual HSV110 controllers, six M5214 dual-redundant FC loop 14-bay drive enclosures, four 12-port FC loop switches; requires DS-KGPSA-xx (283198-B22)	DS-SV110-JB
	Enterprise Virtual Array Model 2C12D-B 60-Hz, includes 41U graphite storage cabinet, M3220 controller assembly with dual HSV110 controllers, 12 M5214 dual-redundant FC loop 14-bay drive enclosures, four 12-port FC loop switches; requires DS-KGPSA-xx, (283199-B21)	DS-SV110-KA
	Enterprise Virtual Array Model 2C12D-B 50-Hz, includes 41U graphite storage cabinet, M3220 controller assembly with dual HSV110 controllers, 12 M5214 dual-redundant FC loop 14-bay drive enclosures, four 12-port FC loop switches; requires DS-KGPSA-xx (283199-B22)	DS-SV110-KB
	Enterprise Virtual Array Model 8C8D 60-Hz, includes 41U graphite storage cabinet, four M3220 controller assembly with eight HSV110 controllers, eight M5214 dual FC loop 14-bay drive enclosures; requires DS-KGPSA-xx (283263-B21)	DS-SV110-LA
	Enterprise Virtual Array Model 8C8D 50-Hz, includes 41U graphite storage cabinet, four M3220 controller assembly, with eight HSV110 controllers, eight M5214 dual FC loop 14-bay drive enclosures; requires DS-KGPSA-xx (283263-B22)	DS-SV110-LB
	Enterprise Virtual Array Model 0C6D-B 60-Hz, includes 41U graphite storage cabinet, six M5214 dual-redundant FC loop 14-bay drive enclosures, 12 16.4-feet/5-meter interconnect cables (to 2C12D-B); requires DS-KGPSA-xx (283264-B21)	DS-SV110-MA
	Enterprise Virtual Array Model 0C6D-B 50-Hz, includes 41U graphite storage cabinet, six M5214 dual-redundant FC loop 14-bay drive enclosures, 12 16.4-feet/5-meter interconnect cables (to 2C12D-B); requires DS-KGPSA-xx (283264-B22)	DS-SV110-MB
	Enterprise Virtual Array Model 0C12D-B 60-Hz, includes 41U graphite storage cabinet, 12 M5214 dual-redundant FC loop 14-bay drive enclosures, 24 16.4-feet/5-meter interconnect cables (to two 2C12D-Bs); requires DS-KGPSA-xx (283265-B21)	DS-SV110-NA
	Enterprise Virtual Array Model 0C12D-B 50-Hz, includes 41U graphite storage cabinet, 12 M5214 dual-redundant FC loop 14-bay drive enclosures, 24 16.4-feet/5-meter interconnect cables (to two 2C12D-Bs); requires DS-KGPSA-xx (283265-B22)	DS-SV110-NB
SAN Solutions Kits	Tru64 UNIX SAN Solutions Kit for Enterprise Virtual Array V2.0 (250193-B22) **NOTE**: V5.1 requires Patch Kit 3: T64V51B19AS0005-20020411.tar V5.1A requires Patch Kit 3: T64V51AB03AS0003-20020827.tar	QB-6RPAB-SB
	OpenVMS SAN Solutions Kit for Enterprise Virtual Array V2.0 (250194-B22) **NOTE**: V7.2-2 requires Tima Kit:DEC-AXPVMS-VMS722_FIBRE_SCSI-V0200 V7.3 requires Tima Kit:DEC-AXPVMS-VMS73_FIBRE_scsi-V0300	QB-6RPAC-SB

Options

Step 7 – Storage Devices – Optional *(continued)*

Fibre Channel Controller (HSG80)	Fibre Channel Controller (HSG80), includes 256-MB cache, requires the following firmware: 8.6-4F ACS FW (222318-B22, QB-6BUAA-SD), one per controller 8.6-4S ACS FW (222364-B22, QB-6ENAA-SC), one per controller 8.6-4P ACS FW (222316-B22, QB-6CAAA-SD), one per controller Requires Tru64 UNIX software: 222320-B23, QB-65RAB-SE, one per controller Requires OpenVMS software: 222321-B22, QB-65RAC-SD, one per controller	DS-HSG80-BK
	Additional 256-MB cache for HSG80 (380674-B21)	DS-HSDIM-AC
	Single cache battery, one per HSG80 controller (135823-B21)	DS-SE2CS-CB
	Model 2200 controller shelf for HSG80 controller (DS-SE2ZS-C8)	135820-B21
Fibre Channel Disk Drives	36-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (2.54 cm) drive (238590-B21)	3R-A3239-AA
	36-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (2.54 cm) drive (236205-B21)	3R-A3210-AA
	72-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (2.54 cm) drive (238921-B21)	3R-A3260-AA
Fibre Channel Switches	Fibre Channel 2-Gb 8-port SAN switch (258707-B21)	DS-DSGGD-AC
	Fibre Channel 2-Gb 16-port SAN switch (283056-B21)	DS-DSGGD-AD
	Fibre Channel 2-Gb SAN switch – 16-port; requires Tru64 UNIX V5.1A Patch Kit: T64V51AB01AS0001-20020116.tar (287055-B21)	DS-DSGGD-BA
	Fibre Channel 2-Gb 64-port Core Switch (254508-B21)	DS-DSGGE-AB

Step 8 – Storage Adapters/Controllers

NOTE: Refer to the following chart when configuring adapters, shelves, and disks.

DS25 Configuration Chart for Storage Adapters

Adapter		Shelf	Disk Drive	Tru64 UNIX	OpenVMS
3X-KZPCA-AA		DS-SL13R-xx BA610-6D	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inchUniversal	V5.1A	V7.3-1
3.3/5V	33 MHz				
3X-KZPEA-DB		DS-SL13R-Bx BA610-6D	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inchUniversal 3R-A3xxx-AA 1-inchUniversal	V5.1A	V7.3-1
3.3/5V	66 MHz				
3X-KZPBA-CC		External HSZ80	DS-RZ1xx-VW	V5.1A	V7.3-1
5V	33 MHz				
DS-KGPSA-DA		External HSG80 HSV110	DS-RZ1xx-VW	V5.1A	V7.3-1
3.3/5V	33 MHz				
RAID Controllers					
DS-KZPCC-AC/CE					
3.3/5V	33 MHz	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1A	-
3X-KZPDC-BE/DF					
3.3/5V	66 MHz	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1A	V7.3-1

Step 8 – Storage Adapters/Controllers *(continued)*

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
PCI Fibre Channel adapter (uses one slot) (261329-B21)	4	4	DS-KGPSA-DA
Fibre Channel cable (BNGBX-xx) xx=02, 05, 15, 30, 50 meters x=1, 2, 3, 4, 5			234457-B2x
PCI 2-port Ultra3 SCSI (LVD2) adapter, 64-bit/66 MHz dual-channel (uses one PCI slot); includes external 68-pin VHDCI connector; HSZxx RAID controllers not supported. No support for shared SCSI – no support for Model 4314R or 4314T single-bus shelves with 3X-KZPEA-DB adapter	4	4	3X-KZPEA-DB
PCI 1-port Ultra2 SCSI (LVD) adapter, 32-bit, single-channel (uses one PCI slot); includes external 68-pin HD connector; requires BN38C-xx cable to connect adapter to Ultra2 SCSI shelf; HSZxx RAID controllers not supported.	4	4	3X-KZPCA-AA
68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20, 25 meter			BN38C-xx
PCI 1-port UltraSCSI differential adapter (uses one PCI slot); includes external 68-pin HD connector, requires BN38C-xx cable (2 to 25 meter) to connect adapter to differential UltraSCSI shelf or RAID controller	4	4	3X-KZPBA-CC
68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20, 25 meter			BN38C-xx
PCI 1-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 16-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx (maximum 14 disks with single channel) – requires graphics adapter to run console utilities (SMOR)	3	-	DS-KZPCC-AC
PCI 3-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 64-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx (maximum 14 disks with single channel) – requires graphics adapter to run console utilities (SMOR)	3	-	DS-KZPCC-CE
PCI 2-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller with 128-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. **NOTE**: No host-based volume shadowing or shared bus support under OpenVMS	4	4	3X-KZPDC-BE
PCI 4-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller with 256-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. **NOTE**: No host-based volume shadowing or shared bus support under OpenVMS	4	4	3X-KZPDC-DF

Options

Step 9 – M-series Cabinets – Optional

M-series enclosures require selection of the following items:

- H9A10 or H9A15 cabinet
- Rack kit for each system
- H9A10 or H9A15 rear cabinet extender
- Second PDU required with four or more systems in one cabinet
- Cabinet front door based on cabinet height
- Factory integration
- Ballast kit if one or two systems are ordered for the H9A15 cabinet
- Two Power cords for each system

NOTE: For more information on M-Series Cabinet Enclosures, see http://www.compaq.com/alphaserver/products/m-series/specs.html

Cabinet Configuration Chart for AlphaServer DS25 (5U) with DS-SL13R (3U) StorageWorks Shelves

Cabinet	Rack Kit	Cabinet Height/Space	Systems	DS-SL13R Shelves	Extra PDU Required	Ballast Kit
H9A10-ME/MF	3X-BA57R-RA	56-inches/33U	1	8	H7600-xx	-
			2	7	H7600-xx	-
			3	5	H7600-xx	-
			4	4	H7602-xx	-
			5	2	H7602-xx	-
			6	0	H7602-xx	-
H9A15-ME/MF	3X-BA57R-RA	68.25-inches/40U	1	8	H7600-xx	1
			2	7	H7600-xx	1
			3	7	H7600-xx	-
			4	6	H7602-xx	-
			5	4	H7602-xx	-
			6	2	H7602-xx	-

NOTE: H9A1x-ME includes one H7602-EB PDU; H9A1x-MF includes one H7602-DB PDU -- Order additional PDUs if more are required. See ordering information on following page.

Options

Step 9 – M-series Cabinets – Optional *(continued)*

Cabinet Configuration Chart for AlphaServer DS25 (5U) with StorageWorks RA3000 and Disk Shelves (12U)

- 12U of vertical cabinet space is reserved for one RA3000 controller shelf and up to five disk shelves mounted in top of cabinet, front to back; an additional 2U of vertical space is required for RA3000 controller shelf UPS.
- Disk shelves can be a combination of RA3000 DS-SWXRA-GN disk shelves and StorageWorks BA36R-RC/RD disk shelves.
- RA3000 controller shelf supports a maximum of four DS-SWXRA-GN disk shelves; third and fourth DS-SWXRA-GN disk shelf ordered will be installed in rear of M-series cabinet; rear mounted shelves require that a 2-meter SCSI cable (BN37A-02) be ordered separately.
- Systems are supported in remaining vertical space.
- Requires an additional H7602-DB/EB PDU

Cabinet	Mounting Kit	Cabinet Height/Space	Systems	RA3000 + Shelves	Ballast Kit
H9A10-ME/MF	3X-BA57R-RA	56-inches/33U	1	1 + 5	-
			2	1 + 5	-
			3	1 + 5	-
H9A15-ME/MF	3X-BA57R-RA	68.25-inches/40U	1	1 + 5	1
			2	1 + 5	1
			3	1 + 5	-
			4	1 + 5	-

M-series Cabinets	67-inch carbon black cabinet with 56-inch or 33U of usable vertical space, 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug NEMA L620P, Americas, Asia Pacific; includes rear door.	H9A10-ME
	67-inch carbon black cabinet with 56-inch or 33U of usable vertical space, 240V dual-16A controller, 16 IEC C13 outlets, two input power plug IEC 309, 20A, Europe; includes rear door.	H9A10-MF
	79-inch carbon black cabinet with 68.25-inch or 40U of usable vertical space, 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug NEMA L620P, Americas, Asia Pacific; includes rear door.	H9A15-ME
	79-inch carbon black cabinet with 68.25-inch or 40U of usable vertical space, 240V dual-16A controller, 16 IEC C13 outlets, two input power plug IEC 309, 20A, Europe; includes rear door.	H9A15-MF
Rear Cabinet Extender – Requires selection of one cabinet extender for each H9A10 or H9A15 cabinet	Rear cabinet extender, carbon black, for H9A10-ME/MF cabinets	H9C10-ZE
	Rear cabinet extender, carbon black, for H9A15-ME/MF cabinets	H9C15-ZE
Cabinet Front Door – Requires selection of door based on cabinet height	Front door for H9A10-ME/MF cabinet enclosure	H9C10-ZF
	Front door for H9A15-ME/MF cabinet enclosure	H9C15-ZF
Factory Integration – Required	Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in predefined locations	YS-ASCAA-AA

Ballast Kit – Required only if one system is ordered for the H9A15 cabinet

- Ballast is added to a cabinet at particular locations for specific configurations to meet safety regulations for installation, operation, and service; see Cabinet Configuration Chart

	Two 35-40 lb steel plates	H9C10-MC

Options

Step 9 – M-series Cabinets – Optional *(continued)*

Power Distribution Unit – Mandatory	240V single 16A input power plug IEC 309, 12 IEC C13 outlets	H7600-DB
	200–240V single 16A input power plug NEMA L620P, with 12 IEC C13 outlets, North America/Canada/Japan	H7600-EB
	240V dual 16A input power plugs IEC 309, with 16 IEC C13 outlets	H7602-DB
	200–240V dual 16A input power plugs NEMA L620P, with 16 IEC C13 outlets, NA/Canada/Japan	H7602-EB
Rackmount Power Cords – Two required for each system, three if optional FR-H7910-AA power supply is installed	Rackmount power cord	BN35S-4E
Power Distribution Unit – Mandatory	240V single 16A input power plug IEC 309, 12 IEC C13 outlets	H7600-DB
	200–240V single 16A input power plug NEMA L620P, with 12 IEC C13 outlets, North America/Canada/Japan	H7600-EB
	240V dual 16A input power plugs IEC 309, with 16 IEC C13 outlets	H7602-DB
	200–240V dual 16A input power plugs NEMA L620P, with 16 IEC C13 outlets, NA/Canada/Japan	H7602-EB
Shelves Supported in M-series Cabinets – Optional	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply. No support for Model 4314R single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter, U.S. / International	DS-SL13R-AA
	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply. No support for Model 4314R single-bus shelves with embedded Ultra3 SCSI adapter or 3X-KZPEA-DB adapter, Japan	DS-SL13R-AJ
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, U.S. / International	DS-SL13R-BA
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, Japan	DS-SL13R-BJ

CustomSystems Support

- Cabinets containing systems and storage must be assembled by qualified assemblers: Hewlett-Packard Manufacturing
- For custom integration of systems

Options

Step 10 – **Graphics Adapters** – Optional

- RAID Configuration Utility is accessible via console port for Tru64 UNIX and OpenVMS systems; optional graphics capability available
- Select graphics adapter, monitor, and country-specific keyboard if required

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
3Dlabs Oxygen VX1 32-MB PCI 2D graphics accelerator **NOTE**: Only VX1 cards may be used in a multi-head environment.	4	4	SN-PBXGF-AB
PowerStorm 300 3D multi-head graphics accelerator with 15-MB frame buffer memory and 16-MB texture memory. Must be installed in PCI slot 5 or 6 (Earlier (D*-57AAA-**) system models support only one device in PCI slot 5)	2	2	SN-PBXGD-AD
PowerStorm 350 3D multi-head graphics accelerator with 30-MB frame buffer memory and 32-MB texture memory. Must be installed in PCI slot 5 or 6 (Earlier (D*-57AAA-**) system models support only one device in PCI slot 5)	2	2	SN-PBXGD-AE
PCI 32-bit, 33-MHz multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 SCSI LVD, and 2D graphics) adapter	1	1	3X-DEPVZ-AA

Options

Step 11 – Networks and Communications – Optional

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
PCI to dual-port 10/100 UTP Fast Ethernet adapter	2	2	3X-DE602-BB
Cable for 10BaseT Twisted Pair connection			BN25G-xx
Shielded cable for 10BaseT Twisted Pair connection			BN25M-xx
Dual-port 10/100 UTP daughter card for 3X-DE602-BB (3X-DE602-BB is a prerequisite)	2	2	3X-DE602-TA
FE FX daughter card for 3X-DE602-BB (3X-DE602-BB is a prerequisite)	2	2	3X-DE602-FA
PCI-X/PCI single-port 1000 Mbps (MMF with duplex-SC) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-c0003000-16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires: T64V51AAB21AS0004-20030206.tar **NOTE**: Use BN34A, BN34B, or equivalent with SC connectors.	4	-	3X-DEGXA-SA
PCI-X/PCI single-port 10/100/1000 Mbps (Twisted-Pair Copper with RJ45) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-c0003000-16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires: T64V51AAB21AS0004-20030206.tar **NOTE:** Use BN25G, BN26M, BN24Q, BN28Q twisted pair RJ45 cables.	4	-	3X-DEGXA-TA
PCI Gigabit Ethernet adapter, SC connectors, MMF, no boot support	2	2	DEGPA-SA
SC-to-SC dual fiber optic cable			BN34B-xx
PCI Gigabit Ethernet adapter, UTP, no boot support	2	2	DEGPA-TA
PCI FDDI adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	2	2	3X-DEFPA-AC
PCI FDDI adapter, DAS, MMF, SC connector	2	2	3X-DEFPA-DC
MIC-SC dual fiber optic cable			BN34D-xx
SC-to-SC dual fiber optic cable			BN34B-xx
PCI FDDI adapter, SAS, TP-PMD, requires BN25H-03 cable	2	2	3X-DEFPA-UC
PCI FDDI dual adapter, DAS, TP-PMD, requires BN25H-03 cable	2	2	3X-DEFPA-MC
3-meter (9.8-inch) FDDI cross-over cable			BN25H-03
PCI (32-bit, 33-MHz) to 4-port Async Communications NIC with DB-25 octopus cable **NOTE**: The Tru64 UNIX driver (UNIX Tar File 4001180K.tar) is located at: http://support.digi.com/support/indexes/tru64-xr.html The OpenVMS driver kit (Filename 4001778L.bin) can be located at http://support.digi.com/support/drivers/vms/index-async.html	4	4	PBXDA-BA
PCI (32-bit, 33-MHz) to 8-port Async Communications NIC with DB-25 octopus cables **NOTE**: The Tru64 UNIX driver (UNIX Tar File 4001180K.tar) is located at: http://support.digi.com/support/indexes/tru64-xr.html The OpenVMS driver kit (Filename 4001778L.bin) is located at http://support.digi.com/support/drivers/vms/index-async.html	4	4	PBXDA-BB

Options

Step 11 – Networks and Communications – Optional *(continued)*

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
PCI 2-port intelligent synchronous controller; the WANDD Kit version for Tru64 UNIX is V3.2-1: http://ftp1.support.compaq.com/public/unix/v5.1a/wanosf/3.2/wanosf_v32-1.README	4	4	3X-PBXDD-AA
PCI 4-port intelligent synchronous controller; the WANDD Kit version for Tru64 UNIX is V3.2-1: http://ftp1.support.compaq.com/public/unix/v5.1a/wanosf/3.2/wanosf_v32-1.README	4	4	3X-PBXDD-AB
PCI-to-ATM 155 Mb adapter – Fiber	4	4	3X-DAPBA-FA
PCI-to-ATM 155 Mb adapter – UTP	4	4	3X-DAPBA-UA
PCI-to-ATM 622 Mb adapter – Fiber	2	2	3X-DAPCA-FA

Step 12 – MEMORY CHANNEL – Optional

Tru64 UNIX Systems (V5.1A)

- Each system node in the cluster requires a TruCluster software license (QL-6BRAC-AA) or TruCluster Plus Software Package (QP-6R9AC-AA)

OpenVMS Systems

- OpenVMS V7.3-1 and OpenVMS Cluster license (QL-MUZAC-AA) are required

Configuring Information

- Up to two PCI-to-System Area Network adapters (CCMAB-AA) are supported in a single system. (Only one adapter is supported on earlier (D*-57AAA-**) models
- Two-node clusters can be configured by ordering a CCMAB-AA for each node and one BN39B-04 or BN39B-10 cable; cable connects directly to CCMAB-AA in each node.
- For a two-node cluster that will not need to be rebooted when adding additional members, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node, and one CCMHB-AA hub for the cluster.
- For three- or four- node clusters, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node, and one CCMHB-AA hub for the cluster. If two CCMAB-AAs are configured in each system, a second CCMHB-AA is required.
- CCMHB-AA includes four CCMLB-AA line cards and supports up to four nodes; expansion up to eight system nodes can be achieved by adding up to four CCMLB-AA line cards.
- If nodes must be separated by a distance longer than standard copper cables allow the CCMFB option converts the output of the standard CCMAB controller or CCMLB line card to single-mode fiber optic cable. The fiber optic connection may be up to 2,000 meters long between two CCMAB controllers connected in virtual hub mode, or 3,000 meters between a CCMAB controller and a CCMHB hub. (The connection from the CCMHB hub to a second system may also be 3,000 meters.) The CCMFB option requires a second PCI slot in the system from which it draws power only. It is normally connected to the corresponding CCMAB controller with the short BN39B-01 cable. The CCMFB is also used in the CCMHB hub where it occupies a slot normally used by the CCMLB line card, limiting expansion to four radial fiber optic connections.
- CCMHB-BA hub expansion box provides additional slots for up to eight fiber optic connections. Two standard length single-mode fiber optic cables are available (BN34R-10 and BN34R-31); however, users normally provide this fiber optic connection. Fiber optic connectivity is completely transparent to the systems using it and has no performance impact.
- **NOTE**: When configuring with two Memory Channel Controllers (CCMAB-AA), all nodes in a Memory Channel cluster must have the window size jumper set to the same size, specifically 128

Options

Step 12 – **MEMORY CHANNEL** – Optional *(continued)*

MEMORY CHANNEL Controller/ System Area Network Hub	PCI-to-System Area Network Controller, maximum two -- 5V/33 MHz. (Must be installed in PCI slot 5 or 6) Earlier (D*-57AAA-**) models support only one device in PCI slot 5	CCMAB-AA
	System Area Network Hub with four line cards; includes BN19P-2E power cord for Canada, Japan, and U.S. – for other regions, order appropriate power cord from the following list:	CCMHB-AA
	Hub expansion box with no line cards	CCMHB-BA
	Expansion line card for CCMHB hub	CCMLB-AA
	1-meter cable for CCMAB and CCMHB	BN39B-01
	4-meter cable for CCMAB and CCMHB	BN39B-04
	10-meter cable for CCMAB and CCMHB	BN39B-10
	Copper-to-single mode fiber optic converter - 5V (clock not affected); maximum one per system. Must be installed in PCI slot 5 or 6. Not supported if two CCMAB-AA options are installed. Not supported in earlier (D*-57AAA-**) system models	CCMFB-AA
MEMORY CHANNEL Power Cords	Australia, New Zealand (103541-011)	BN19H-2E
	Central Europe	BN19C-2E
	Denmark (103541-481)	BN19K-2E
	Egypt, India (103541-AR1)	BN19S-2E
	Ireland, United Kingdom	BN19A-2E
	Israel	BN18L-2E
	Italy (103541-461)	BN35M-02
	Switzerland (103541-511)	BN19E-2E

Step 13 – Monitors – Optional

- Graphics monitors other than those listed can be used if compatible with SVGA graphics ordered with system.
- A video cable, 6-foot/1.8-meter length, is included with all variants of monitors
- Video extension cable required if monitor is located more than 1-meter from system.
- Monitors will ship with, but not be integrated with systems.

Carbon/Silver Monitors	V7550 17-inch (16-inch viewable image size) flat-faced shadow mask color monitor, two-tone (carbon/silver), 0.25mm dot pitch, VGA to 1024 x 768 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with NA power cord, VGA cable	3R-A4002-AA
	Same as above, with Euro power cord	3R-A4201-AA
	Same as above, APD, no power cord	3R-A4202-AA
	Same as above, with PRC power cord, CCIB	3R-A4446-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4203-AA
	P930 19-inch (18-inch viewable image size) auto-scanning color monitor, Diamondtron NF, 0.24mm aperture grille pitch, VGA to 1600 x 1200 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with NA power cord, VGA cable	3R-A4215-AA
	Same as above, with Euro power cord	3R-A4391-AA
	Same as above, Taiwan, with NA power cord	3R-A4392-AA
	Same as above, with PRC power cord, CCIB	3R-A4394-AA
	Same as above, Southern Hemisphere, 0.25 to 0.27 mm aperture grille pitch, with Australia/New Zealand power cord	3R-A4393-AA

Options

Step 13 – Monitors – Optional *(continued)*

Carbon/Silver Monitors *(continued)*	P1130 21-inch (19.8-inch viewable image size) FD Trinitron auto-scanning color monitor, 0.24mm aperture grille pitch, VGA to 1792 x 1344 @85Hz, dual video input, USB Hub, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with NA power cord, VGA cable	3R-A4216-AA
	Same as above, with Euro power cord	3R-A4396-AA
	Same as above, Taiwan, NA power cord	3R-A4397-AA
	Same as above, with PRC power cord, CCIB	3R-A4400-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4398-AA
Carbon/Silver Flat Panel Monitors	TFT1825, 18-inch (18-inch viewable image size) TFT flat panel monitor, 0.28mm pixel pitch, 1600 x 1200 @60Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, one VGA, one DVI-I input connector. NA power cord, VGA and DVI-I cables	3R-A4292-AA
	TFT1520, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @75 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), NA power cord, VGA and DVI-I cables	3R-A4249-AA
Video Extension Cable	6-foot/1.8-meter video extension cable	BN39C-02
Monitor Power Cords	North America	BN26J-1K
	Australia, New Zealand, 2.5-meter (103541-011)	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter (103541-481)	BN19K-2E
	Egypt, India, South Africa, 2.5-meter (103541-AR1)	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter (103541-461)	BN35M-02
	Japan, 2.5-meter, Dentori approved	3X-BN46F-02
	Switzerland, 2.5-meter (103541-511)	BN19E-2E
	UK, Ireland, 2.5-meter	BN19A-2E

Step 14 – Keyboards, Mouse, and Documentation - Optional

Step 14a – Keyboards and Mouse

- Order country-specific keyboard or mouse only if required
- All keyboards listed may not be available in all geographies
- Select an opal OpenVMS keyboard for use with VT5xx text terminals

	Opal	Carbon	
Keyboard/Language	**OpenVMS**	**Tru64 UNIX**	**OpenVMS**
U.S./English keyboard	LK461-A2	3R-LKQ48-BA	3X-LK462-A2
Arabic keyboard	-	3R-LKQ48-BR	-
Belgian keyboard	LK461-AB	3R-LKQ48-AB	3X-LK462-AB
BHCSY keyboard	-	3R-LKQ48-AX	-
Canadian/English keyboard	LK461-AQ	-	3X-LK462-AQ
Canadian/French keyboard	LK461-AC	3R-LKQ48-AC	3X-LK462-AC
Cyrillic keyboard (Russian)	LK461-BT	3R-LKQ48-BT	3X-LK462-BT
Czech keyboard	LK461-BV	3R-LKQ48-BV	3X-LK462-BV
Danish keyboard	LK461-AD	3R-LKQ48-AD	3X-LK462-AD
Dutch keyboard	LK461-AH	3R-LKQ48-AH	3X-LK462-AH
Finnish keyboard	LK461-AF	3R-LKQ48-AF	3X-LK462-AF
French keyboard	LK461-AP	3R-LKQ48-AP	3X-LK462-AP
German keyboard	LK461-AG	3R-LKQ48-AG	3X-LK462-AG
Greek keyboard	LK461-BH	3R-LKQ48-BH	3X-LK462-BH
Hebrew keyboard	LK461-AT	3R-LKQ48-AT	3X-LK462-AT
Hungarian keyboard	LK461-BQ	3R-LKQ48-BQ	3X-LK462-BQ
International keyboard	-	3R-LKQ48-BA	-
Italian keyboard	LK461-AI	3R-LKQ48-AI	3X-LK462-AI
Japanese keyboard	-	3R-LKQ48-AJ	-
Korean keyboard	-	3R-LKQ48-BK	-
Latin-American keyboard	-	3R-LKQ48-AR	-
Norwegian keyboard	LK461-AN	3R-LKQ48-AN	3X-LK462-AN
Polish keyboard	LK461-BP	3R-LKQ48-BP	3X-LK462-BP
Portuguese keyboard	LK461-AV	3R-LKQ48-AV	3X-LK462-AV
Romanian keyboard	LK461-BL	-	3X-LK462-BL
Simplified Chinese keyboard	-	3R-LKQ48-CV	-
Slovak keyboard	LK461-CZ	3R-LKQ48-CZ	3X-LK462-CZ
Spanish keyboard	LK461-AS	3R-LKQ48-AS	3X-LK462-AS
Swedish keyboard	LK461-AM	3R-LKQ48-AM	3X-LK462-AM
Swiss/French keyboard	LK461-AK	3R-LKQ48-AK	3X-LK462-AK
Swiss/German keyboard	LK461-AL	-	3X-LK462-AL
Traditional Chinese keyboard	-	3R-LKQ48-BI	-
Thai keyboard	-	3R-LKQ48-CB	-
Turkish/Q keyboard	LK461-BU	3R-LKQ48-BU	3X-LK462-BU
Turkish/F keyboard	LK461-BW	-	3X-LK462-BW
UK keyboard	-	3R-LKQ48-AE	-
Yugoslavian keyboard	LK461-BY	-	3X-LK462-BY

Options

Step 14 – Keyboards, Power Cords, Documentation *(continued)*

Step 14b – Mouse		
	3-button mouse – carbon	3R-A3480-AA
Keyboard or Mouse Extension Cable	6-foot/1.8-meter keyboard or mouse extension cable; to extend both keyboard and mouse order two cables	3X-BC34A-06

Step 15 – Console Terminal – Optional

- Any terminal can be used as a console device
- Third-party console devices require an EIA-232 25-pin DSUB connector

VT510 video terminal; requires keyboard, H8575-x adapter, and BC16E-x cable	VT510-xx
Console cable, female connector (25-pin passive adapter)	H8575-A
Console cable, male connector (adapter with EOS, ESD, 25 POS, D-SUB)	H8575-D

Step 16 – Software – Required selection of media and documentation for first system on site

- Software Processor Code = E

Tru64 UNIX

- AlphaServer DS25 Tru64 UNIX systems include Unlimited User license, Server Extension license, Internet Express, and Secure Web Server
- AlphaStation DS25 Tru64 UNIX systems include Base 2-user license andOpen3D license

Tru64 UNIX media and online documentation on CD-ROM	QA-6ADAA-H8
Tru64 UNIX full hard copy documentation	QA-6ADAA-GZ
Tru64 UNIX Unlimited User license	QL-MT7AE-AA
Internet Express for Tru64 UNIX	QB-3NCAA-SA
TruCluster Plus Software Package, licenses for TruCluster Server, Logical Storage Manager and AdvFS Ultilities	QP-6R9AC-AA
Advanced Server for Tru64 UNIX, 25 client concurrent use license	QL-5U29M-3D
Advanced Server for Tru64 UNIX, 50 client concurrent use license	QL-5U29M-3E
Advanced Server for Tru64 UNIX, 100 client concurrent use license	QL-5U29M-3F
Advanced Server for Tru64 UNIX, 250 client concurrent use license	QL-5U29M-3G
Advanced Server for Tru64 UNIX, 500 client concurrent use license	QL-5U29M-3H
Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8
DECnet/OSI end-system license for Tru64 UNIX	QL-MTJAE-AA
DECnet/OSI extended function license for Tru64 UNIX	QL-MTKAE-AA

Step 16 – **Software** – Required selection of media and documentation for first system on site *(continued)*

OpenVMS

- AlphaServer DS25 OpenVMS systems include Base license with System Manager license and Enterprise Integration Server Package for OpenVMS Revision V3.1
- AlphaStation DS25 OpenVMS systems include Base license, Concurrent Use 1-user license, NAS 150 Client license, and Open3D license
- Enterprise Integration Package includes licenses for TCP/IP Services for OpenVMS, DECwindows Motif for OpenVMS Alpha, DECprint Supervisor for OpenVMS Open, DECnet-Plus for OpenVMS Alpha End System, Archive/Backup System for OpenVMS Management Tools, Archive/Backup Agent for Windows NT, Office Server for OpenVMS, PATHWORKS 32, PATHWORKS V6 for OpenVMS – Advanced Server, and Office Server Client Access License

OpenVMS media and online documentation on CD-ROM	QA-MT1AA-H8
OpenVMS hard copy documentation	QA-001AA-GZ
Layered products media and documentation for OpenVMS on CD-ROM	QA-03XAA-H8

- OpenVMS Concurrent Use licenses provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.
- OpenVMS Traditional Unlimited Use license is system specific and can only be used on one single system at a time. It cannot be shared between systems or in an OpenVMS VAX or OpenVMS Alpha Cluster.

Concurrent Use 1-user license	QL-MT3AA-3B
Concurrent Use 2-user license	QL-MT3AA-3C
Concurrent Use 4-user license	QL-MT3AA-3D
Concurrent Use 8-user license	QL-MT3AA-3E
Concurrent Use 16-user license	QL-MT3AA-3F
Concurrent Use 32-user license	QL-MT3AA-3G
Concurrent Use 64-user license	QL-MT3AA-3H
Concurrent Use 128-user license	QL-MT3AA-3J
Concurrent Use 256-user license	QL-MT3AA-3K
OpenVMS Cluster license for Alpha systems	QL-MUZAC-AA
OpenVMS Cluster Client license for Alpha systems	QL-3MRAC-AA
OpenVMS Cluster Client to Full VMS Cluster Migration license	QL-6J7AC-AA
Enterprise Integration Server for OpenVMS media and documentation	QA-5LVAA-H8
DECnet extended function license for OpenVMS	QL-MTGAE-AA
DECnet end-system to extended function upgrade license for OpenVMS	QL-MTHAE-AA
OpenVMS Volume Shadowing license	QL-2A1AE-AA

Options

Step 17 – Hardware and Software Support Services

- Select one of the optional *CarePaq*™ Priority Service Packages described below that best supports the customer's operational requirements for system availability.

CarePaq Priority Services	• CarePaq Priority Services are available for AlphaServer/AlphaStation systems running Tru64 UNIX or OpenVMS operating systems. Priority Services are designed for the growing number of customers who need support beyond the basic warranty. Five packages are offered - Priority, Priority 24, Priority Silver, Priority Gold, and Priority Executive with coverage for both Principal servers/stations and SSPs (Subsequent System Packages) – that meet a full range of customer support requirements.

Program Features – Principal Server

Priority	• 9 x 5 HW/SW support • 4-hour response on-site hardware support • 2-hour response for Bronze software support • License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX) • Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Condist can be ordered separately.)
Priority 24	• 24 x 7 HW/SW support • Named HW engineer • 4-hour response on-site hardware support • 2-hour response for Bronze software support • License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX) • Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Condist can be ordered separately.)
Priority Silver	• 24 x 7 HW Support with Named Engineer, 4-hour response • 24 x 7 Silver SW Support - Named Account Rep, 1-hour response Monday – Friday, 8AM-5PM local time; 2-hour response remaining hours • License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX) • Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Condist can be ordered separately.) • Technical newsletter and SW activity review • Proactive Patch Notification • One (1) System Healthcheck per year
Priority Gold	• 24 x 7 HW support with Named Engineer, 4-hour response for on-site support • 24 x 7 Gold SW support - Named Account Rep • 30-minute callback (critical); 1-hour callback (non-critical) • License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX) • Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Condist can be ordered separately.) • Technical newsletter, SW activity review and 10 hours Upgrade impact planning • Proactive Revision Management • Two (2) System Healthchecks per year • Mandatory pre-qualification required

Options

Step 17 – Hardware and Software Support Services *(continued)*

Priority Gold Executive

- 24 x 7 HW support with Named Engineer, two-hour response for on-site support
- 24 x 7 Gold SW support - Named Account Rep
- 30-minute callback (critical); one-hour callback (non-critical)
- License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
- Software update distribution on CD-ROM: OpenVMS or Tru64 UNIX and their layered products (Layered products not included on Condist can be ordered separately.)
- Technical newsletter, SW activity review and 10 hours Upgrade impact planning
- Proactive Revision Management
- Two (2) System Healthchecks per year
- Customer site must be within 25 miles of a HP service location
- Mandatory pre-qualification required

Program Features – Additional Services

SSPs (Subsequent System Packages)

- For Priority, Priority 24, Priority Silver, Priority Gold, and Priority Gold Executive
- HW Support at same level as corresponding package for Principal server/station
- License Subscription: HP O/S (where applicable)
- Telephone support through Principal server/station covered by full support package

Installation

- Preinstallation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- No software installation added

Installation & Startup HP O/S

- Preinstallation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- Install operating systems
- Product configuration
- Print and network access
- Orientation

Model/CarePaq Priority Service	Principal Server/Station 1 year	Principal Server/Station 3 years	Subsequent Systems 1 year	Subsequent Systems 3 years
AlphaServer/AlphaStation DS25				
Priority	FP-A01NA-12	FP-A01NA-36	FP-A21NA-12	FP-A21NA-36
Priority 24	FP-A02NA -12	FP-A02NA-36	FP-A22NA-12	FP-A22NA-36
Priority Silver	FP-A04NA-12	FP-A04NA-36	FP-A24NA-12	FP-A24NA-36
Priority Gold	FP-A08NA-12	FP-A08NA-36	FP-A28NA-12	FP-A28NA-36
Priority Gold Exec.	FP-A09NA-12	FP-A09NA-36	FP-A29NA-12	FP-A29NA-36
Installation	FP-AINST-NA	FP-AINST-NA	FP-AINST-NA	FP-AINST-NA
Installation & Startup	FP-ASTAR-NA	FP-ASTAR-NA	FP-ASTAR-NA	FP-ASTAR-NA

NOTES:

- AlphaServer/AlphaStation DS25 systems include one-year parts and labor warranty with 5 x 9 on-site Next Business Day response.
- Priority Services include support for new HP branded hardware options internal to the AlphaServer/AlphaStation enclosure plus a monitor (17-inch or less excluding flat panel models).
- External storage devices/cabinets carry their own level of warranty and should be quoted separately for uplifted warranty services.
- Five years CarePaq Priority Service is available upon request. To quote five-year service, change the last two part number digits from 12 or 36 to 60.
- In addition to the CarePaq Priority Services, uplifted warranty Supplemental Services are available for separate hardware and software support. For more information on Hardware and Software Supplemental Services and other HP service options available for AlphaServers and AlphaStations, consult your Sales Account Manager or visit http://www.compaq.com/services/

NOTE: This web site is available in English only.

Technical Specifications

Pedestal	**Dimensions** (H x W x D)	18.5 x 8.85 x 27.5 in (47.0 x 22.5 x 69.9 cm)		
	Shipping Dimensions	24 x 26.25 x 40 in (61.0 x 66.0 x 101.6 cm)		
	Weight	Typical Configuration	80 lb (36 kg)	
		Maximum Configuration	88 lb (40 kg)	
	Shipping Weight	Nominal	100 lb (45 kg)	
		Maximum	110 lb (50 kg)	
	Clearances	**Operating**	**Service**	
	Front	15 in (38.1 cm)	15 in (38.1 cm)	
	Rear	6 in (15 cm)	29.5 in (75 cm)	
	Left Side	None	None	
	Right Side	None	None	

Rackmount	**Dimensions** (H x W x D)	8.75 x 17.5 x 26 in (22.2 x 44.5 x 66.0 cm) (5U)		
	Shipping Dimensions	24 x 26.25 x 40 in (61.0 x 66.0 x 101.6 cm)		
	Weight	When lifting	Nominal	80 lb (36 kg)
			Maximum	86 lb (39 kg)
		Total added to cabinet (brackets, slides, cables):	Nominal	84 lb (38 kg)
			Maximum	88 lb (40 kg)
	Shipping Weight	Nominal	100 lb (45 kg)	
		Maximum	110 lb (50 kg)	
	Clearances	**Operating**	**Service**	
		See specific cabinet requirements	Minimum 4 ft (121.9 cm), 28 in (71 cm) withdrawal on rails	

Cabinet		**H9A10 M-Series**	**H9A15 M-Series**
	Dimensions (H x W x D)	67 x 23.6 x 43.27 in (170 x 60 x 110 cm)	79 x 23.6 x 35.4 in (200 x 60 x 90 cm)
	Shipping Dimensions	73 x 36 x 48 in (185.5 x 91.5 x 122 cm)	85 x 36 x 48 in (216 x 91.5 x 122 cm)
	Weight	Configuration dependent	Configuration dependent
	Shipping Weight	Nominal: 946 lb (430 kg)	Nominal: 1,056 lb (550 kg)
		Maximum: 1,375 lb (625 kg)	Maximum: 1,408 lb (640 kg)

System Unit

ENVIRONMENTAL

Temperature	Operating (Tower, Rackmount)	50° to 95° F (10° to 35° C)
	Non-operating	41° to 122° F (5° to 50° C)
	Storage (60 days)	–40° to 151° F (–40 to 66° C)
	Rate of change	20°F/hr (11°C/hr)
	NOTE: Maximum operating temperature at sea level; reduce by 1.8°F (1°C) for each 600m (2,000 ft) above sea level.	
Humidity	Operating	20% to 90%, non-condensing
	Non-operating	10% to 90%, non-condensing
	Storage (60 days)	10% to 95%
Maximum Wet Bulb Temperature	Operating	82° F (28° C)
	Non-operating	90° F (32° C)
	Storage (60 days)	115° F (46° C)
Heat Dissipation	Nominal	Maximum
Tower	550W, 1,878 BTU/hr	780W, 2,664 BTU/hr
H9A10/H9A15 Cabinets	Configuration dependent	
Air Flow and Quality	Intake location	Front
	Exhaust location	Rear Tower, Pedestal, Rack; Rear/top H9A10/H9A15
	Particle size	N/A
	Concentration	N/A
Altitude (unpressurized)	Operating	10,000 f (3,037m)
	Non-operating	40,000 ft (12,192m)
	NOTE: Higher altitudes are possible if maximum operating temperature is reduced (see Temperature); other restrictions may apply such as maximum permissible altitude for hard drives.	

ACOUSTICS (Declared values per ISO 9296 and ISO 7779)

Acoustics	L_{WAd},B	L_{pAm}, dBA (bystander positions)
Idle	6.3	45
Operating	6.4	46
	NOTE: Current values for specific configurations are available from HP, note that 1 B = 10 dBA.	
Vibration	Operating	10-500 Hz 0.1 G peak
Shock	Operating	10G 11ms half-sine (pedestal) 5G 11ms half-sine (rack)

System Unit *(continued)*

ELECTRICAL (Power supplies are universal, PFC, auto ranging, 100/240 VAC)

Nominal Voltage (VAC)	100	120	200 to 240
Voltage Range (VAC) (temporary condition)	90 to 100	110 to 128	180-250
Power Source Phase	Single	Single	Single
Nominal Frequency (Hz)	50/60	50/60	50/60
Frequency Range (Hz)	49 - 63	49 - 63	49 - 63

RMS Current

Pedestal and Rackmount			
Single power cord	6.3A	5.3A	3.0
Maximum VA	630	640	690
M-Series Cabinet (configuration dependent)		120	220-240
Nominal voltage (VAC)	100		
Each power cord	24A	24A	16A

Power Cords

Pedestal	1 (75 in (190 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to country-specific
Rackmount	1 (14 ft 10 in (452 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to IEC 320 C14 (other countries)
Cabinet	2 (10 ft 10 in (330 cm))	120V non-removable NEMA L5-30P or 200-240V non-removable IEC 309
Regulatory	Agency Approvals	UL: Listed to UL1950 (3rd edition)
		CSA: Certified to CAN/CSA-C22.2 No. 950-M95
		TUV: EN 60950/A11: 1997 VDE 0805 GS marked
		FCC: Part 15.B Class B
		CE: EN55022, EN50024, EN61000-3-2, EN61000-3-3
		VCCI V-3/97.04 Class B ITE
		BSMI: CNS13438
		C-Tick: AS/NZS 3548 (1995)
	Reviewed to	AS/NZ 3260:1993 Australian/New Zealand Standard
		EN 60950/A11: 1997 European Norm
		IEC 950 (2nd edition, 4th amend)

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